



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,317	03/30/2004	Masahiro Ikehara	925-288	1811

23117 7590 02/21/2006

NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

VY, HUNG T

ART UNIT	PAPER NUMBER
----------	--------------

2821

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/812,317

Applicant(s)

IKEHARA ET AL.

Examiner

Hung T. Vy

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-13 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/30/04, 9/21/05, 1/23/06

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This is a response to Applicant's amendment filed 1/23/2006. In virtue of this amendment, claims 1-13 remain pending in this application of which the addition of claims 10-13. Upon reconsideration, the rejection of claims 1-13 by Sakai and Komma mailed 08/23/2005 is hereby withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ogawa et al. or Takahashi.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

3. Claims 1-4 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Ogawa et al. (U.S. Patent No. 6,556,532).

The applied reference has a common assignee as sharp Kabushiki Kaisha with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With respect to claims 1 and 11, Ogawa et al. discloses semiconductor laser device comprising: a laser emission (1) for emitting a laser beam; a laser reception (4) for receiving a backward beam of the laser beam reflected by an irradiation object; a polarization hologram (12) for transmitting the laser beam directed from the laser

emission part to the irradiation object as a forward beam without diffracting the beam, and diffracting a backward beam of the laser beam, which is a return beam of the forward beam that has been reflected by the irradiation object, and dividing the backward beam into plural holographic diffracted beams so that the holographic diffracted beams are deflected from a direction directed toward the laser emission part (1) and further directed toward the laser reception part (4); and a three-beam diffraction grating (13) for dividing one of the holographic diffracted beam, which result from the diffraction of the backward beam by the polarization hologram, into three beams and for letting the beam incident on the laser reception part (4), wherein the three beam diffraction grating (13) is not located in a forward path (B1,B2) of the forward beam between the laser emission (1) part and the polarization hologram (12) , and wherein the three –beam diffraction grating (13) is located only in a backward path of one of the holographic diffracted beams (See fig. 1).

With respect to claim 2, Ogawa et al. discloses the polarization hologram (12) and the three-beam diffraction grating (13) are integrated together (See fig. 1).

With respect to claim 3, Ogawa et al. discloses the three-beam diffraction grating 13 is so positioned that the forward beam directed from the laser emission part toward the irradiation object is inhibited from being incident on the three-beam diffraction grating (See fig. 1).

With respect to claim 4, Ogawa et al. discloses the laser reception part includes a first photoreception (4) part for receiving a + 1st –order diffracted beam derived from the

Art Unit: 2821

polarization hologram, and a second photoreception part 81 for receiving a -1^{st} -order diffracted beam derived from the polarization hologram (12) (See figs. 4 or 6).

4. Claims 1-5, 11 and 13 are rejected under 35 U. S. C. § 102 (b) as being anticipated by Takahashi, (U.S. Patent No. 5,838,651).

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

With respect to claims 1, and 11, Takahashi discloses semiconductor laser device comprising: a laser emission (1) for emitting a laser beam; a laser reception (6-8) for receiving a backward beam of the laser beam reflected by an irradiation object (10); a polarization hologram (2) for transmitting the laser beam directed from the laser emission part to the irradiation object as a forward beam without diffracting the beam, and diffracting a backward beam of the laser beam, which is a return beam of the forward beam that has been reflected by the irradiation object, and dividing the backward beam into plural holographic diffracted beams so that the holographic diffracted beams are deflected from a direction directed toward the laser emission part (1) and further directed toward the laser reception part (6-8); and a three-beam diffraction grating (5) for dividing one of the holographic diffracted beam, which result from the diffraction of the backward beam by the polarization hologram, into three beams and for letting the beam incident on the laser reception part (6-8), wherein the three beam diffraction grating (5) is not located in a forward path of the forward beam between the laser emission (1) part and the polarization hologram (2) , and wherein the three -beam diffraction grating (5) is located only in a backward path of one of the holographic diffracted beams (See fig. 3).

With respect to claim 3, Takahashi discloses the three-beam diffraction grating (5) is so positioned that the forward beam directed from the laser emission part toward the irradiation object is inhibited from being incident on the three-beam diffraction grating (See fig. 3).

With respect to claim 4, Takahashi discloses the laser reception part includes a first photoreception (6,7,8) part for receiving a + 1st -order diffracted beam derived from the polarization hologram, and a second photoreception part 81 for receiving a -1st -order diffracted beam derived from the polarization hologram (2) (See column 4, line 54-64).

With respect to claim 5, Takahashi discloses the three-beam diffraction grating (5) varies in diffraction efficiency depending on positions in a grating extension direction along which the grating extends (See figs. 5).

With respect to claim 13, Takahashi discloses no portion of the three beam diffraction grating overlaps the center of the polarization hologram when viewed from above or below (see fig. 3).

Claim Rejections - 35 U.S.C. § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6-8 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Ogawa et al. (U.S. Patent No. 6,556,532 or Takahashi, (U.S. Patent No. 5,838,651) in view of Hamada et al., (U.S. Patent No. 5,475,670).

With respect to claims 6-8, Ogawa et al. or Takahashi disclose all limitation of claim invention recited in claim 1 except for the three-beam diffraction grating, a land width to groove width ratio of land portions and groove portions and groove depth which constitute the grating continuously varies along the grating extension direction. However, Hamada et al. discloses the three beam diffraction grating, and land width to groove width ratio of land portions and groove portions and groove depth which constitute the grating continuously varies along the grating extension direction (see fig. 23-24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the antenna of Ogawa et al. or Takahashi by arranging a three beam diffraction grating, groove depth and a land width to groove which constitute the grating continuously varies along the grating-extension direction, in lieu of one, so as to be able to impart a particular optical filtering function and the diffraction efficiencies of the laser beam emitted from the semiconductor laser since such an arrangement of a three beam diffraction grating, groove depth and a land width to groove which constitute the grating continuously varies along the grating-extension direction for the stated purpose has been well known in the art as evidenced by the teaching of Hamada et al. (See column 2, line 1-35).

7. Claims 9-10 and 12 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Ogawa et al. (U.S. Patent No. 6,556,532 or Takahashi, (U.S. Patent No. 5,838,651) in view of Ohuchida et al., (U.S. Patent No. 5,684,779).

Regarding claims 9 and 12, Komma et al. or Sakai et al. discloses all of the claimed limitation as expressly recited in claim 1 except a $\frac{1}{4}$ wave plate corresponding to wavelength of the laser beam. However, Ohuchida et al. discloses a $\frac{1}{4}$ wave plate 13 corresponding to wavelength of the laser beam (See fig. 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the antenna of Ogawa et al. or Takahashi by arranging a $\frac{1}{4}$ wave plate, in lieu of one, so as to be able to convert the light into a linearly polarized light perpendicular to the emission light since such an arrangement of a $\frac{1}{4}$ wave plate for the stated purpose has been well known in the art as evidenced by the teaching of Ohuchida et al. (See column 4, line 56-58).

With respect to claim 10, Takahashi discloses no portion of the three-beam diffraction grating overlaps the center of the polarization hologram when viewed from above or below (see fig. 3).

Response to Arguments

8. Applicant's arguments, with respect to the rejection(s) of claim(s) 1-9 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ogawa et al. or Takahashi.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Vy whose telephone number is (571) 272-1954. The examiner can normally be reached on Monday-Friday 8:30 am - 5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax numbers for the organization where this application or proceeding is assigned are (571) 273 8300

Information regarding the status of an application may be obtained from the patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either private Pair or Public Pair. Status information for unpublished applications is available through Private Pair only. For more information

Art Unit: 2821

about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hung T. Vy
Art Unit 2821
February 14, 2006.


Don Wong
Supervisory Patent Examiner
Technology Center 2800